



Math Study Strategies

Nursing Math

Diluent for IM administration



A physician **orders** 3,500,000 units of Penicillin. The **label on the vial** of the **ordered drug** reads 5,000,000 units. How many **cc's** of diluent would the nurse add to provide 3,500,000 units in 1.0 cc ?

Follow the steps below to solve the problem:

1. What is prescribed by the physician?

▶ 3,500,000 units.

2. How is **the vial of powered drug** on hand labeled?

▶ 5,000,000 units

3. What is the problem asking?

▶ How many cc's of diluent would the nurse add to provide 3,500,000 units in 1 cc?

▶ If 3,500,000 units corresponds to 1cc, then what amount of diluent corresponds to 5,000,000?

$$\frac{1cc}{\text{diluent}} = \frac{3,500,000\text{units}}{5,000,000\text{units}}$$

4. This is a proportion where we can make the two cross-products equal

$$3,500,000 \times \text{diluent} = 1cc \times 5,000,000$$

Dividing both sides by 3,500,000 gives:

$$\begin{aligned} \text{diluent} &= \frac{5,000,000\text{units}}{3,500,000\text{units}} \times 1cc \\ \text{diluent} &= 1.42851 \approx 1.43cc \end{aligned}$$

▶ To carry out the physician's order, you need to add **1.43cc** diluent to the dry powder.

